RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: 10/581,810
Source: EFW
Date Processed by STIC: 3/14/07

ENTERED

IFWO

RAW SEQUENCE LISTING DATE: 03/14/2007
PATENT APPLICATION: **US/10/581,810** TIME: 14:58:16

Input Set : **N:\efs\03_14_07\10581810_efs\HERR13001APCSEQLIST.TXT**
Output Set: **N:\CRF4\03142007\J581810.raw**

```
4 <110> APPLICANT: Ortega Mora, Luis MIguel
5       Fernandez Garcia, Aurora
8 <120> TITLE OF INVENTION: Use of gene NcSAG4 for the diagnosis and
9       prevention of neosporosis and as a marker for analysis of
10      the pathogenesis
12 <130> FILE REFERENCE: HERR13.001APC
14 <140> CURRENT APPLICATION NUMBER: US 10/581,810
15 <141> CURRENT FILING DATE: 2006-06-02
17 <150> PRIOR APPLICATION NUMBER: PCT/ES2004/000529
18 <151> PRIOR FILING DATE: 2004-11-26
20 <150> PRIOR APPLICATION NUMBER: ES P200302869
21 <151> PRIOR FILING DATE: 2003-12-04
23 <160> NUMBER OF SEQ ID NOS: 15
25 <170> SOFTWARE: FastSEQ for Windows Version 4.0
27 <210> SEQ ID NO: 1
28 <211> LENGTH: 23
29 <212> TYPE: DNA
30 <213> ORGANISM: Neospora caninum
32 <220> FEATURE:
33 <221> NAME/KEY: modified_base
34 <222> LOCATION: 6
35 <223> OTHER INFORMATION: I
37 <400> SEQUENCE: 1
W--> 38 tggacntayg ayttyaaraa rgc                                    23
40 <210> SEQ ID NO: 2
41 <211> LENGTH: 23
42 <212> TYPE: DNA
43 <213> ORGANISM: Neospora caninum
45 <220> FEATURE:
46 <221> NAME/KEY: modified_base
47 <222> LOCATION: 12, 15, 18, 21
48 <223> OTHER INFORMATION: I
50 <400> SEQUENCE: 2
W--> 51 aaraargara tnatnacncc ngg                                   23
53 <210> SEQ ID NO: 3
54 <211> LENGTH: 23
55 <212> TYPE: DNA
56 <213> ORGANISM: Neospora caninum
58 <220> FEATURE:
59 <221> NAME/KEY: modified_base
60 <222> LOCATION: 3
61 <223> OTHER INFORMATION: I
63 <400> SEQUENCE: 3
```

RAW SEQUENCE LISTING DATE: 03/14/2007
PATENT APPLICATION: US/10/581,810 TIME: 14:58:16

Input Set : N:\efs\03_14_07\10581810_efs\HERR13001APCSEQLIST.TXT
Output Set: N:\CRF4\03142007\J581810.raw

W--> 64 acnggytcrt cyttrcartg rtc 23
66 <210> SEQ ID NO: 4
67 <211> LENGTH: 24
68 <212> TYPE: DNA
69 <213> ORGANISM: Neospora caninum
71 <220> FEATURE:
72 <221> NAME/KEY: modified_base
73 <222> LOCATION: 22
74 <223> OTHER INFORMATION: I
76 <220> FEATURE:
77 <221> NAME/KEY: misc_feature
78 <222> LOCATION: 7
79 <223> OTHER INFORMATION: n = A,T,C or G
81 <400> SEQUENCE: 4
W--> 82 rtcyttnacy ttraarcara angg 24
84 <210> SEQ ID NO: 5
85 <211> LENGTH: 20
86 <212> TYPE: DNA
87 <213> ORGANISM: Neospora caninum
89 <400> SEQUENCE: 5
90 ccgacgaagc cctgagaact 20
92 <210> SEQ ID NO: 6
93 <211> LENGTH: 19
94 <212> TYPE: DNA
95 <213> ORGANISM: Neospora caninum
97 <400> SEQUENCE: 6
98 tgtcgcctgt tgggttgta 19
100 <210> SEQ ID NO: 7
101 <211> LENGTH: 24
102 <212> TYPE: DNA
103 <213> ORGANISM: Neospora caninum
105 <400> SEQUENCE: 7
106 gaaacaagaa aagagactat ctca 24
108 <210> SEQ ID NO: 8
109 <211> LENGTH: 20
110 <212> TYPE: DNA
111 <213> ORGANISM: Neospora caninum
113 <400> SEQUENCE: 8
114 ccaggtgaga gtgtttcgat 20
116 <210> SEQ ID NO: 9
117 <211> LENGTH: 601
118 <212> TYPE: DNA
119 <213> ORGANISM: Neospora caninum
121 <220> FEATURE:
122 <221> NAME/KEY: CDS
123 <222> LOCATION: (48)...(568)
125 <400> SEQUENCE: 9
126 ggcaacacgt cgcagcgtac tctcatcttt ttcgtgggtt tgcagcc atg gag aaa 56
127 Met Glu Lys

RAW SEQUENCE LISTING DATE: 03/14/2007
PATENT APPLICATION: **US/10/581,810** TIME: 14:58:16

Input Set : **N:\efs\03_14_07\10581810_efs\HERR13001APCSEQLIST.TXT**
Output Set: **N:\CRF4\03142007\J581810.raw**

```
128                                                             1
130 agc gcc ttc ttt ccc agg gtg gtg ctc tgt ttc gtc gta gtt ttg tcc   104
131 Ser Ala Phe Phe Pro Arg Val Val Leu Cys Phe Val Val Val Leu Ser
132      5                  10                  15
134 gcg tgc tcg gcg tgg cga gtg gaa ggg aag aac tgg tcg tac gat ttc   152
135 Ala Cys Ser Ala Trp Arg Val Glu Gly Lys Asn Trp Ser Tyr Asp Phe
136  20                  25                  30                  35
138 aag aag ccg ctg gac agc gat gaa aca aga aaa gag act atc tca cca   200
139 Lys Lys Pro Leu Asp Ser Asp Glu Thr Arg Lys Glu Thr Ile Ser Pro
140              40                  45                  50
142 ggt gag agt gtt tcg ata caa aat tct ggg agc att acg ctg gcg tac   248
143 Gly Glu Ser Val Ser Ile Gln Asn Ser Gly Ser Ile Thr Leu Ala Tyr
144          55                  60                  65
146 aac cca aca ggc gac aca caa gtt ctc agg gct tcg tcg gga gac agc   296
147 Asn Pro Thr Gly Asp Thr Gln Val Leu Arg Ala Ser Ser Gly Asp Ser
148      70                  75                  80
150 tgc agg gat gag cca atc gaa ctt gcg act tta ttc cca gca gcc acg   344
151 Cys Arg Asp Glu Pro Ile Glu Leu Ala Thr Leu Phe Pro Ala Ala Thr
152  85                  90                  95
154 ccg gcg ccc acg tgg atg caa act ggt agc acg aga acc tta gcg ttt   392
155 Pro Ala Pro Thr Trp Met Gln Thr Gly Ser Thr Arg Thr Leu Ala Phe
156 100                 105                 110                 115
158 cct acc aac gca gta ccc gcg aag cag acc acg ccg ttc tgt ttt aaa   440
159 Pro Thr Asn Ala Val Pro Ala Lys Gln Thr Thr Pro Phe Cys Phe Lys
160                 120                 125                 130
162 gtc acg gat acg cag aag aac aaa act ctg aca gcg ata atc aag gtc   488
163 Val Thr Asp Thr Gln Lys Asn Lys Thr Leu Thr Ala Ile Ile Lys Val
164             135                 140                 145
166 gcc ggt gcc caa ggc ttg tct gct gct ctg ggg gtc tcc att gga ata   536
167 Ala Gly Ala Gln Gly Leu Ser Ala Ala Leu Gly Val Ser Ile Gly Ile
168         150                 155                 160
170 cca gct ctt gct ttt gca ctg agt tcg ata ta agggcatgca aacgaataaa  588
171 Pro Ala Leu Ala Phe Ala Leu Ser Ser Ile
172     165                 170
174 tgaggcgact gat                                                  601
176 <210> SEQ ID NO: 10
177 <211> LENGTH: 173
178 <212> TYPE: PRT
179 <213> ORGANISM: Neospora caninum
181 <400> SEQUENCE: 10
182 Met Glu Lys Ser Ala Phe Phe Pro Arg Val Val Leu Cys Phe Val Val
183  1               5                  10                  15
184 Val Leu Ser Ala Cys Ser Ala Trp Arg Val Glu Gly Lys Asn Trp Ser
185             20                  25                  30
186 Tyr Asp Phe Lys Lys Pro Leu Asp Ser Asp Glu Thr Arg Lys Glu Thr
187         35                  40                  45
188 Ile Ser Pro Gly Glu Ser Val Ser Ile Gln Asn Ser Gly Ser Ile Thr
189     50                  55                  60
190 Leu Ala Tyr Asn Pro Thr Gly Asp Thr Gln Val Leu Arg Ala Ser Ser
```

RAW SEQUENCE LISTING DATE: 03/14/2007
PATENT APPLICATION: US/10/581,810 TIME: 14:58:16

Input Set : N:\efs\03_14_07\10581810_efs\HERR13001APCSEQLIST.TXT
Output Set: N:\CRF4\03142007\J581810.raw

```
191 65                  70                  75                  80
192 Gly Asp Ser Cys Arg Asp Glu Pro Ile Glu Leu Ala Thr Leu Phe Pro
193                 85                  90                  95
194 Ala Ala Thr Pro Ala Pro Thr Trp Met Gln Thr Gly Ser Thr Arg Thr
195             100                 105                 110
196 Leu Ala Phe Pro Thr Asn Ala Val Pro Ala Lys Gln Thr Thr Pro Phe
197         115                 120                 125
198 Cys Phe Lys Val Thr Asp Thr Gln Lys Asn Lys Thr Leu Thr Ala Ile
199     130                 135                 140
200 Ile Lys Val Ala Gly Ala Gln Gly Leu Ser Ala Ala Leu Gly Val Ser
201 145                 150                 155                 160
202 Ile Gly Ile Pro Ala Leu Ala Phe Ala Leu Ser Ser Ile
203                 165                 170
206 <210> SEQ ID NO: 11
207 <211> LENGTH: 26
208 <212> TYPE: DNA
209 <213> ORGANISM: Neospora caninum
211 <400> SEQUENCE: 11
212 gccaggatcc atggagaaaa gcgcct                                        26
214 <210> SEQ ID NO: 12
215 <211> LENGTH: 31
216 <212> TYPE: DNA
217 <213> ORGANISM: Neospora caninum
219 <400> SEQUENCE: 12
220 ttcgaattcc ttatatcgaa ctcagtgcaa a                                  31
222 <210> SEQ ID NO: 13
223 <211> LENGTH: 28
224 <212> TYPE: DNA
225 <213> ORGANISM: Neospora caninum
227 <400> SEQUENCE: 13
228 ttatggatcc ggaagaactg gtcgtacg                                      28
230 <210> SEQ ID NO: 14
231 <211> LENGTH: 30
232 <212> TYPE: DNA
233 <213> ORGANISM: Neospora caninum
235 <400> SEQUENCE: 14
236 tttgaattcc ttaggcgacc ttgattatcg                                    30
238 <210> SEQ ID NO: 15
239 <211> LENGTH: 155
240 <212> TYPE: PRT
241 <213> ORGANISM: Neospora caninum
243 <400> SEQUENCE: 15
244 Met Arg Gly Ser His His His His His His Gly Met Ala Ser Met Thr
245  1               5                  10                  15
246 Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Asp Lys Asp
247             20                  25                  30
248 Arg Trp Ile Arg Lys Asn Trp Ser Tyr Asp Phe Lys Lys Pro Leu Asp
249         35                  40                  45
250 Ser Asp Glu Thr Arg Lys Glu Thr Ile Ser Pro Gly Glu Ser Val Ser
```

RAW SEQUENCE LISTING DATE: 03/14/2007
PATENT APPLICATION: **US/10/581,810** TIME: 14:58:16

Input Set : **N:\efs\03_14_07\10581810_efs\HERR13001APCSEQLIST.TXT**
Output Set: **N:\CRF4\03142007\J581810.raw**

```
251     50                  55                  60
252 Ile Gln Asn Ser Gly Ser Ile Thr Leu Ala Tyr Asn Pro Thr Gly Asp
253 65                  70                  75                  80
254 Thr Gln Val Leu Arg Ala Ser Ser Gly Asp Ser Cys Arg Asp Glu Pro
255                 85                  90                  95
256 Ile Glu Leu Ala Thr Leu Phe Pro Ala Ala Thr Pro Ala Pro Thr Trp
257             100                 105                 110
258 Met Gln Thr Gly Ser Thr Arg Thr Leu Ala Pro Thr Asn Ala Val Pro
259         115                 120                 125
260 Ala Lys Gln Thr Thr Pro Phe Cys Phe Lys Val Thr Asp Thr Gln Lys
261     130                 135                 140
262 Asn Lys Thr Leu Thr Ala Ile Ile Lys Val Ala
263 145                 150                 155
```

RAW SEQUENCE LISTING ERROR SUMMARY DATE: 03/14/2007
PATENT APPLICATION: **US/10/581,810** TIME: 14:58:17

Input Set : **N:\efs\03_14_07\10581810_efs\HERR13001APCSEQLIST.TXT**
Output Set: **N:\CRF4\03142007\J581810.raw**

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; N Pos. 6
Seq#:2; N Pos. 12,15,18,21
Seq#:3; N Pos. 3
Seq#:4; N Pos. 7,22

VERIFICATION SUMMARY DATE: 03/14/2007
PATENT APPLICATION: **US/10/581,810** TIME: 14:58:17

Input Set : **N:\efs\03_14_07\10581810_efs\HERR13001APCSEQLIST.TXT**
Output Set: **N:\CRF4\03142007\J581810.raw**

L:38 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:0
L:51 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:0
L:64 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:0
L:82 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:0